

Abstract

A powder of a layered lithium-nickel-manganese-cobalt composite oxide for use as a positive-electrode material for lithium secondary battery is provided which, when used as a positive-electrode material for lithium secondary battery, enables a cost reduction and higher safety to be reconciled with improved battery performances.

The powder of a layered lithium-nickel-manganese-cobalt composite oxide for use as a positive-electrode material for lithium secondary battery is composed of secondary particles formed by the aggregation of primary particles. It has a composition represented by the following formula (I), has a volume resistivity of $5 \times 10^5 \Omega \cdot \text{cm}$ or lower in the state of being compacted at a pressure of 40 MPa, and has a value of C/S , wherein C is the concentration of carbon contained therein (% by weight) and S is the BET specific surface area thereof (m^2/g), of 0.025 or smaller. The powder has been regulated so as to have a volume resistivity not higher than the specified value and a considerably reduced carbon content while having a composition in a limited range, whereby a cost reduction and higher safety can be reconciled with improved battery performances.



$$(0 < z \leq 0.91, \quad 0.1 \leq x \leq 0.55, \quad 0.20 \leq y \leq 0.90, \quad 0.50 \leq x+y \leq 1, \quad 1.9 \leq \delta \leq 3)$$